

ADDITIONAL HYDROIDS FROM THE SEYCHELLES

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(With 3 figures)

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ABSTRACT

This paper supplements an earlier one on the hydroids of the Seychelles and records ten more species. In addition three new species are described, namely *Egmundella modesta*, *Hebella muscensis* and *Scandia tubithecæ*. The last two have identical trophosomes but different gonosomes, and arising from this it becomes necessary to consider *Campanularia costata* Bale, 1884 and *Campanularia corrugata* Thornely, 1904 as *nomina oblita* since these were both described on sterile material.

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INTRODUCTION

The hydroids described in this paper were collected by the second author during an expedition to the Seychelles Archipelago from June to September 1972. This expedition was financed by the Belgian 'Fonds National de la Recherche Scientifique', the Belgian Ministry of Education and Culture, the 'Musée Royal de l'Afrique Centrale' (Tervuren, Belgium) and the University of Brussels. The collection is the property of the 'Musée Royal de l'Afrique Centrale', where the types of new species have been deposited.

During a previous mission, in 1966, a large quantity of marine invertebrates was collected and from the interest their study aroused we were led to consider another expedition in order to complete our observations and extend them to some islands of the archipelago never before prospected or scarcely so.

As for the hydroids, one paper has already been published by Millard & Bouillon (1973) and another by Bouillon (1974). The present account expands our knowledge of the hydroid fauna of this area.

LIST OF SPECIES

Additional to those described by Millard & Bouillon (1973), together with localities. Those species marked with an asterisk will be discussed further in the pages which follow.

Family **Asyncorynidae**

Asyncoryne ryniensis Warren

A small fertile colony growing inside a dead *Pecten* shell, and bearing several young medusae with cnidophores. Dredged between Silhouette and Mahé.

Family **Cladocorynidae**

Cladocoryne floccosa Rotch

A large number (over 60) of infertile polyps from Praslin growing on sponges.

Family **Pandeidae**

**Amphinema ?rugosum* (Mayer)

A small fertile colony from Anse la Mouche.

Family **Campanulinidae**

**Egmundella modesta* sp. nov.

Family **Haleciidae**

**Campalecium cirratum* (Haeckel)

Three rich and fertile colonies from Anse la Mouche and Praslin.

Family **Lafocidae**

**Hebella muscensis* sp. nov.

**Scandia tubitheca* sp. nov.

Family **Syntheciidae**

**Hincksella corrugata* Millard

An infertile colony from Bird Island.

**Hincksella cylindrica pusilla* Ritchie

Several stems reaching a maximum height of 8,7 mm from Bird Island.

Family **Sertulariidae**

**Dynamena obliqua* Lamouroux

An infertile colony from Bird Island.

**Sertularella diaphana* (Allman)

A fragment of an infertile stem 1,1 cm in length from Praslin.

Sertularia distans (Lamouroux)

An infertile colony from Bird Island.

Family **Plumulariidae**

Pycnotheca mirabilis (Allman)

Two infertile stems from Bird Island.

In addition new information is provided for the following species:

Family **Bougainvilliidae**

**Silhouetta uvacarpa* Millard & Bouillon

A fertile colony dredged between Silhouette Island and Beau Vallon on Mahé Island, from which newly released medusae were obtained.

Family **Campanulinidae**

**Phialella quadrata* (Forbes)

A fertile colony from Anse la Mouche growing on the stem of *Halocordyle disticha*.

Family **Syntheciidae**

**Synthecium patulum* (Busk)

Three fertile colonies, one dredged between Silhouette Island and Beau Vallon on Mahé Island, and two from Anse la Mouche.

SYSTEMATIC SECTION

Family **Bougainvilliidae**

Silhouetta uvacarpa Millard & Bouillon, 1973

Silhouetta uvacarpa Millard & Bouillon, 1973: 25, fig. 3A–D, pls 2–3.

Description

Newly released medusae reaching a maximum size of approximately 0,9 (depth) × 1,0 mm (diameter) possess four oral tentacles with one dichotomy, and four marginal tentacles. The branching oral tentacles confirm the inclusion of this species in the Bougainvilliidae.

Family **Pandeidae**

Amphinema ?rugosum (Mayer, 1900)

Fig. 1A–D

Amphinema rugosum: Rees & Russell, 1937: 67, figs 5–6. Russell, 1953: 183, fig. 90, pl. 10 (fig. 3), pl. 11 (figs 2, 4). Kramp, 1965: 29.

Description

Solitary hydranths and medusa-buds arising separately from a creeping hydrorhiza. Hydrorhiza with firm perisarc, about 0,03 mm in diameter.

Hydranths up to 3 mm in height, with one row of 10–12 filiform tentacles, contained within a firm perisarc tube for most of length. Perisarc tube slender and annulated at base, smooth for the rest and widening distally.

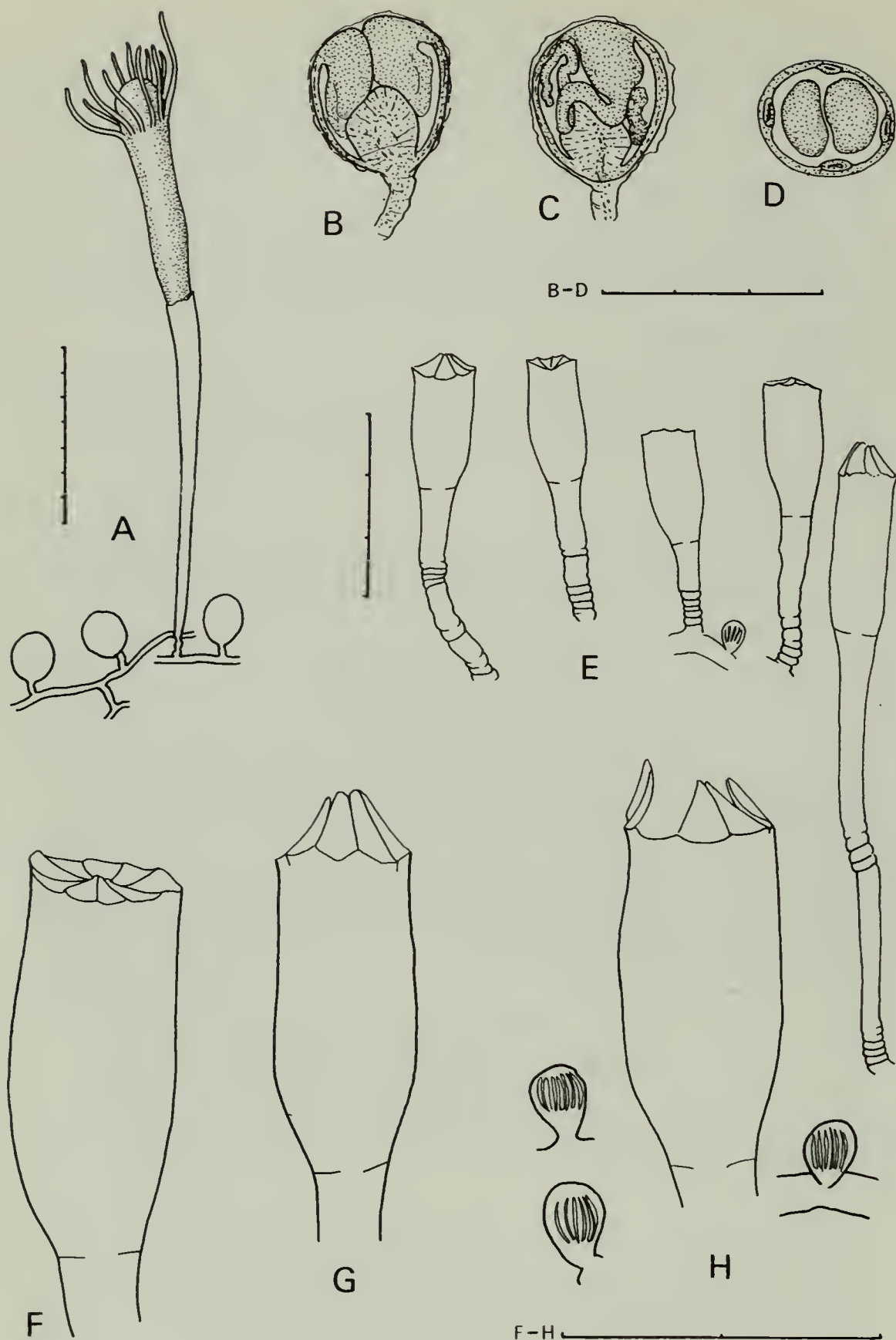


Fig. 1. *Amphinema ?rugosum*. A. Part of a colony sketched from a combination of several damaged hydranths. B-D. Views of medusa-buds from whole mounts, right one viewed from above, showing two tentacles, hypostome and radial canals.

Egmundella modesta sp. nov. E-H. Views of hydranthophores and nematothecae.

Scale in mm/10.

Medusa-buds on short pedicels contained in wrinkled perisarc, oval, with four radial canals and two opposite marginal bulbs bearing coiled tentacles. No oral tentacles.

Measurements (mm)

Perisarcal tube, height	..	..	..	..	..	1,41–2,53
diameter at base	..	..	..	..	..	0,02–0,04
diameter at distal end	..	..	..	..	..	0,09–0,13
Medusa-bud, height	..	..	..	..	reaching	0,23
diameter	..	..	..	..	reaching	0,20

Remarks

The medusa-buds, with their two stout marginal bulbs, resemble the genus *Amphinema*, in which the hydranths of *A. dinema* and *A. rugosum* are known (Rees & Russell 1937). Of the two this material is closer to *A. rugosum*, which has stronger perisarc annulated at the base. Both species of medusa occur in the plankton; *A. dinema* is rare and *A. rugosum* very abundant.

Family **Campanulinidae**

***Egmundella modesta* sp. nov.**

Fig. 1E–H

Lovenella sp.: Millard & Bouillon, 1973: 42, fig. 5E–F.

Holotype: an infertile stolonial colony from Anse la Mouche.

Description

Hydrothecae borne singly on the summit of pedicels of variable length. Pedicel increasing in diameter from base to distal end; with thicker perisarc at the base and thinner distally; annulated irregularly, with 2–7 distinct annulations at base and above this smooth or with faintly corrugated areas or with groups of annulations, distal end always smooth.

Hydrotheca deep-campanulate, rounded at base, narrowed above this and widening again at margin. A definite diaphragm present. Operculum of about eight triangular segments clearly demarcated from thecal wall.

Nematothecae scattered on hydrorhiza, one-chambered, obovate to globular, sessile, containing a cluster of large nematocysts.

Hydranth with 15–18 tentacles in the few extended individuals present, with no intertentacular web.

Measurements (mm)

Pedicel, length	..	..	..	..	..	0,14–0,71
diameter at base	..	..	..	..	..	0,03–0,05
Hydrotheca, depth	..	..	..	..	..	0,20–0,33
diameter at margin	..	..	..	..	..	0,08–0,11
Nematotheca, depth	..	..	..	..	..	0,04–0,05
maximum diameter	..	..	..	..	..	0,02–0,04

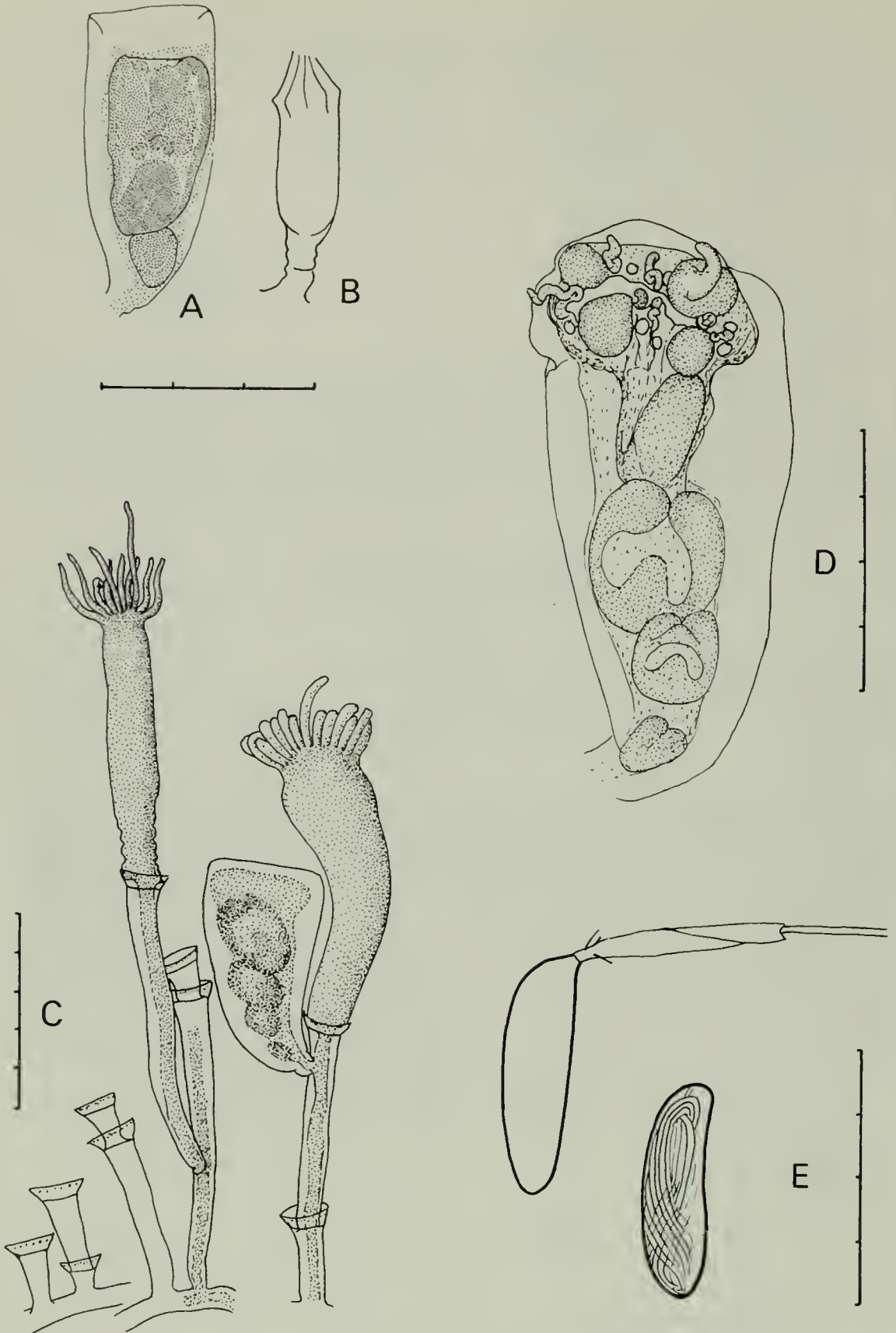


Fig. 2. *Phialella quadrata*. A. Gonotheca containing medusa-buds. B. Hydrotheca. *Campalecium cirratum*. C. Hydranthophores with hydranths and gonotheca. D. Gonotheca with medusa-bud ready to escape. E. Microbasic mastigophore, discharged and undischarged.

Scale: A-D in mm/10, E in mm/100.

Remarks

This species differs from *E. amirantensis* in the presence of a well-developed and annulated thecal pedicel and in the sessile nematothecae.

The material is similar to that described by Millard & Bouillon (1973) as ?*Lovenella* sp. Re-examination of this earlier material has established the presence of nematophores in the samples from Praslin although in the original preparation it was not possible to relate them with certainty to the same hydrorhiza.

The structure of the hydrotheca with its diaphragm and well-demarcated opercular segments distinguishes *E. modesta* from other species of *Egmundella*. Indeed the hydrotheca is similar to that of *Lovenella* and the only character definitely distinguishing the hydranth generations of these two genera is the presence of nematothecae in the former.

Phialella quadrata (Forbes, 1848)

Fig. 2A–B

Hypsorophus quadratus: Huvé, 1952: 38, figs 3–7.

?*Phialella quadrata*: Millard & Bouillon, 1973: 43, fig. 5G–J.

Description

Colony stolonial. Hydrothecae similar to those described from Mahé in 1973 and measurements within range.

Gonothecae present, elongated and truncated distally, reaching 0,57 mm in length and 0,24 mm in maximum diameter, containing two medusa-buds, one large and one small. Larger medusa-buds deep, with at least two marginal bulbs and tentacles.

Remarks

The presence of gonothecae, which are exactly like those illustrated by Huvé, supports the identification of this material.

Family Haleciidae

Campalecium cirratum (Haeckel, 1879)

Fig. 2C–E

Halecium simplex Pictet, 1893: 22, pl. 1 (figs 16–17). Ritchie, 1910: 807, pl. 77 (figs 10–11).

Campalecium medusiferum Torrey, 1902: 48, pl. 3 (figs 26–29). Huvé, 1954: 183, pls 7–9.

Eucheilota cirrata: Brinckmann, 1959: 82, figs 1–3.

Lovenella cirrata: Kramp, 1961: 177; 1968: 80, fig. 215.

Campalecium simplex: Rees & Thursfield, 1965: 112.

Description

Hydrorhiza reticular or forming long unbranched threads on the surface of sponges and polyzoans, giving rise to hydranthophores at intervals.

Hydranthophores usually solitary and with a single terminal hydranth, occasionally with one or two sympodial branches; often regenerated. Pedicel constricted at base, of very variable length. Hydrotheca with straight walls widening to margin, with a circle of refringent nodules marking attachment of hydranth. Hydranth very large, with 24–30 tentacles and an intertentacular web.

Gonotheca arising from side of pedicel below hydrotheca, curved, widening to truncated distal end, containing three or four medusa-buds one above the other.

Oldest medusa-bud with four perradial marginal bulbs of which two bear tentacles and are slightly larger than the others, and eight adradial statocysts. Although the margin is rather crumpled, in the largest medusa a marginal cirrus is clearly visible next to three of the large marginal bulbs, and four interradianal cirri can be identified on rudimentary marginal bulbs.

Large nematocysts (microbasic mastigophores) present in intertentacular web and in gonophores, $33,6 \times 7,2 - 36,0 \times 9,0 \mu$. Capsule banana-shaped. Butt with length approximately equal to that of capsule, bearing a raised spiral ridge with small spines on the proximal region. Several other types of nematocyst present in tentacles, but undischarged.

Measurements (mm)

Pedicel, length	..	..	..	..	..	..	0,07–0,99
diameter at base	..	..	..	..	..	..	0,04–0,08
Hydrotheca, depth	..	..	..	..	..	..	0,02
diameter at margin	..	..	..	..	..	..	0,10–0,14
Gonotheca, depth	..	..	..	..	..	..	0,41–0,77
maximum diameter	..	..	..	..	..	..	0,23–0,38

Remarks

Brinckmann (1959) reared medusae of *Lovenella cirrata* (Haeckel, 1879) from the polyp *Haleciella microtheca* Hadži, 1914, which latter Huvé (1954) included as a synonym for *Campalecium medusiferum* Torrey, 1902.

Rees & Thursfield (1965) synonymized *Campalecium medusiferum* with *Halecium simplex* Pictet, 1893 after re-examination of Ritchie's material (1910) of the latter species from Mergui. They used the name *Campalecium simplex*. However, they gave no description of the gonophores and did not comment on Ritchie's statement that the gonangium contained 'ova to the number of about six'. Recently the first author, by the courtesy of the Royal Scottish Museum, Edinburgh, was able to re-examine Ritchie's slides (nos. 1959. 33. 162–171). Although it was not possible to decipher details of structure, the gonothecae clearly contained medusa-buds and not eggs as described and illustrated by Ritchie. We, therefore, confirm Rees & Thursfield's synonymy, but point out that of the available specific names *cirratum* Haeckel, 1879 antedates *simplex* Pictet, 1893, *medusiferum* Torrey, 1902 and *microtheca* Hadži, 1914.

Although the genus name *Lovenella* Hincks, 1868 has precedence over

Campalecium Torrey, 1902, we do not feel that the former can be stretched to contain a Haleciid polyp, and therefore retain the name *Campalecium*. We are here faced with a species in which the polyp generation belongs to one family (Haleciidae) and the medusa to another (Lovenellidae).

The presence of microbasic mastigophores in the species supports the idea of an affinity between the Haleciidae and the Campanulinidae suggested earlier by Millard (1975) and based on the presence of a Lovenellid medusa in *Campalecium* and certain resemblances of hydranth and hydrothecal structure in the two families. These nematocysts, which are by no means common in the Athecata, occur also in *Hydrodendron caciniiformis* (personal observation of first author) and *Halecium halecinum* (Weill 1934) among the Haleciidae, and in *Eucheilota maculata* and *Eutonina indicans* among the Campanulinidae (Werner 1968a, 1968b). Werner suggests that their evolutionary forerunners are basitrichous isorhizas, which are often difficult to distinguish from them and which occur commonly in the Campanulinidae.

The polyp generation of *C. cirratum* is known from the Mediterranean, the Indo-West Pacific (Moluccas, Mergui) and the eastern Pacific (California). This is the first record from the western Indian Ocean. These records, together with those of the medusa from the Mediterranean, various parts of the tropical Atlantic and Malaya (Kramp 1961, 1968), show the species to be circumtropical in distribution.

Family Lafoeidae

Remarks on Hebella corrugata and H. costata

Campanularia corrugata Thornely, 1904 was described from a sterile colony from Ceylon. The type material of *Campanularia costata* Bale, 1884 from Port Darwin, with which species Billard (1941) synonymizes *Hebella corrugata*, was also sterile. Since the original description of these two species all material delegated to one or the other has been sterile, except for some empty and probably immature gonothecae described by Billard (1941). In 1973, however, Millard & Bouillon described gonophores in material from the Seychelles, which was attributed to Thornely's species. Since the gonophores were fixed sporosacs and showed no medusoid characters, the species was transferred from *Hebella* to *Scandia*, thus: *Scandia corrugata*.

In this second collection from the Seychelles, material is present with an identical trophosome—it cannot be distinguished from that described in 1973 on measurements or any other character—but with gonothecae containing well-developed medusa-buds. It is apparent, therefore, that there are two species with identical trophosomes and different gonosomes, one a *Hebella* and the other a *Scandia*. Since there is no means of telling to which of these Thornely's and Bale's species belong, the only immediate solution is to create two new species, and to regard *Hebella corrugatum* (Thornely 1904) and *Hebella costata* (Bale 1884) as *nomina oblita*. Sterile material cannot be identified, and all sterile records attributed to either of the two species should be disregarded.

*Hebella muscensis** sp. nov.

Fig. 3A-B

Holotype: a fertile colony epizootic on *Syntheicum* sp. from Anse la Mouche.

Description

Hydrotheca tubular, curved to one side, with 5-9 transverse annulations, with everted margin usually oblique to axis and lower on the shorter, more concave side. An annular thickening present round base, asymmetrically developed, pronounced on the shorter, more concave side and often not noticeable on the other. Pedicel short, not annulated, but occasionally with an indistinct node separating it from the hydrorhiza.

Gonotheca borne on hydrorhiza on short pedicel, elongated, widening distally, often slightly curved, usually longer than hydrotheca, with transverse annulations which may be somewhat irregular, with an operculum of four segments, containing up to four medusa-buds one above the other. Medusa-bud with rounded hypostome, at least four marginal tentacles and a varying number of ocelli (usually eight).

Measurements (mm)

Pedicel length	0,08-0,17
Hydrotheca, depth, convex side	0,82-1,20
diameter at mouth	0,35-0,53
diameter/depth	0,37-0,50
Gonotheca, length	1,04-1,42
maximum diameter	0,38-0,53

Scandia tubitheca sp. nov.

Scandia corrugata: Millard & Bouillon, 1973: 60, fig. 8D-F (fertile colony only).

Holotype: fertile colony from Amirante, Seychelles, epizootic on *Syntheicum dentigerum*.

Diagnosis

Hydrotheca similar to that of *Hebella muscensis*. Gonotheca (only male known) also very similar, but wider distally and not curved, containing a single gonophore in the form of a fixed sporosac.

Family *Syntheeciidae**Hincksella corrugata* Millard, 1958

Hincksella corrugata Millard, 1958: 181, fig. 5. Gravier, 1970: 116.

Description

Unbranched stems reaching 8,0 mm and with up to 10 hydrothecae. Structure similar to holotype, but dimensions all slightly less.

* From Anse la Mouche: Bay of flies.

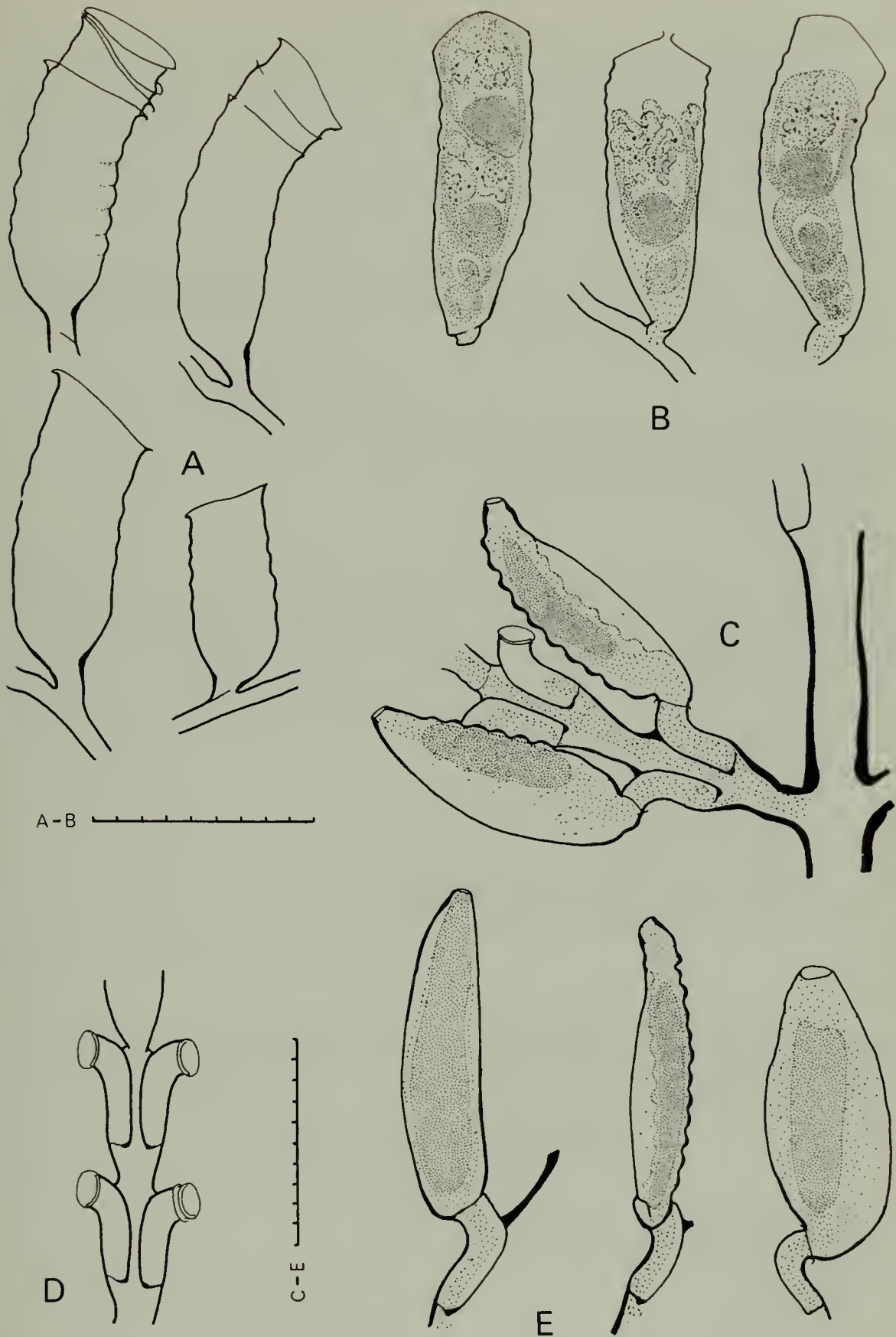


Fig. 3. *Hebella muscensis* sp. nov. A. Hydrothecae. B. Gonothecae containing medusa-buds. *Syntheodium patulum*. C. Part of stem with a pair of gonothecae in narrow view. D. Part of hydrocladium. E. Gonothecae: a smooth one in narrow view, an annulated one in narrow view and a smooth one in broad view.

Scale in mm/10.

Measurements (mm)

Stem, internode length	..	..	..	..	0,41–0,74
Hydrotheca, length abcauline	..	..	..	..	0,43–0,53
length adcauline, adnate part	..	..	..	..	0,30–0,33
length adcauline, free part..	..	..	..	..	0,30–0,38
diameter at margin	..	..	..	..	0,35–0,41

Remarks

H. corrugata has been reported from the western Indian Ocean from Natal to S.E. Madagascar (Gravier 1970). This record extends the range further north. The gonophores still await discovery.

Hincksella cylindrica pusilla Ritchie, 1910

Sertularella cylindrica var. *pusilla* Ritchie, 1910: 817, pl. 77 (fig. 9).

Hincksella cylindrica pusilla: Millard, 1964: 22, fig. 6A–D.

Cyclonia pusilla: Hirohito, 1969: 16, fig. 12.

Description

Stems normally unbranched, but one with a single lateral branch. Hydrotheca with a larger proportion adnate than the South African material described by Millard (1964), but otherwise very similar. Empty gonothecae present, arising from within hydrothecae, elongated and tapering distally.

Measurements (mm)

Stem, internode length	..	..	..	..	0,26–0,59
Hydrotheca, length abcauline	..	..	..	..	0,35–0,54
length adcauline, adnate part	..	..	..	..	0,15–0,34
length adcauline, free part..	..	..	..	..	0,28–0,41
diameter at margin	..	..	..	..	0,12–0,27
Gonotheca, length from hydrothecal margin	..	..	..	..	0,57–0,77
maximum diameter..	..	..	..	..	0,22–0,35

Remarks

This is the first discovery of gonophores in African material of the subspecies, and the shape is similar to that of the male gonophores described by Hirohito from Japan.

Syntheicum patulum (Busk, 1852)

Fig. 3C–E

Syntheicum orthogonia: Bale, 1888: 767, pl. 17 (figs 1–5).

Syntheicum campylocarpum Allman, 1888: 78, pl. 37 (fig. 1).

Syntheicum patulum: Billard, 1925: 125, figs 2–3. Millard & Bouillon, 1973: 64, fig. 8J.

Description

Pinnate stems reaching 2,0 cm, with 1–3 pairs of hydrothecae between successive pairs of hydrocladia.

Gonothecae arising from within hydrothecae on stem or hydrocladia and rather different in appearance from those described in 1973, being longer and more compressed. The transverse annulations, which number up to 11, are restricted to the centre region and are visible only in side view unless the gonotheca is empty, when the appearance is similar to Bale's diagram (1888: pl. 17 (fig. 5)). Within the same colony are gonothecae which have no annulations at all and are completely smooth. All gonothecae are male.

Measurements (mm)

Hydrotheca, length abcauline	..	..	..	..	0,36–0,50
length adcauline, adnate part	..	..	..	..	0,48–0,63
length adcauline, free part..	..	..	..	..	0,08–0,20
diameter at margin ..	..	..	..	..	0,17–0,22
Gonotheca, length	..	..	..	..	1,38–1,84
breadth	..	..	..	..	0,56–0,74
thickness	..	..	..	..	0,20–0,41

Remarks

Although the gonothecae are more compressed than any previously illustrated for *S. patulum* or its synonyms, we do not feel justified in creating a new species for what is probably a variable feature. It is possible that the shorter and fatter gonothecae illustrated in 1973 were female.

Family Sertulariidae

Dynamena obliqua Lamouroux, 1816

Pasythea quadridentata var. *balei* Billard, 1907: 355, fig. 6.

Dynamena obliqua: Millard, 1958: 184, fig. 6A.

Description

Stems reaching 6,6 mm, most of them with hydrothecal pairs ungrouped, some of them with one or two groups of two pairs. Hydrothecae smaller than those reported from Moçambique (Billard 1907) and from South Africa (Millard 1958), but shape very similar. Internal teeth present in most hydrothecae, one adcauline and two latero-abcauline.

Measurements (mm)

Hydrotheca, length abcauline	..	..	..	..	0,20–0,24
length adcauline, adnate part	..	..	..	..	0,20–0,24
length adcauline, free part..	..	..	..	..	0,12–0,14
diameter at mouth ..	..	..	..	..	0,07–0,08

Sertularella diaphana (Allman, 1886)

Thuiaria diaphana Allman, 1886: 145, pl. 18 (figs 1-3).

Sertularella diaphana: Billard, 1925: 157, figs 22-24, pl. 7 (figs 12-14). Millard, 1958: 188, fig. 7C-D.

Description

This stem is unusual in that it rotates through 90° half-way up. Both stem and hydrocladia are more slender than the South African material (Millard 1958) and are close to Billard's var. *delicata* (1925). The hydrocladia have only two or three hydrothecae to an internode.

Remarks

This species is known from the east coast of Africa, Mauritius and Madagascar, so its presence in the Seychelles is not unexpected.

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